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THE

PSYCHOLOGICAL BULLETIN

PROCEEDINGS OF THE THIRTEENTH ANNUAL MEETING OF THE AMERICAN PSYCHOLOGICAL ASSOCIATION, UNIVERSITY OF PENNSYLVANIA, PHILADELPHIA, DECEMBER 28, 29 AND 30, 1904.

Report of the Secretary.

The thirteenth annual meeting of the American Psychological Association was held at the University of Pennsylvania, Philadelphia, on Wednesday, Thursday and Friday, December 28, 29 and 30, 1904, in affiliation with the American Association for the Advancement of Science and the American Society of Naturalists. President William James was in the chair at the various sessions. On the morning of Thursday, the twenty-ninth, the Association met in joint session with the American Philosophical Association and in the evening of that day the two societies held a smoker at the Colonnade Hotel. The meeting adjourned on Friday afternoon after a vote of thanks for the courtesy and hospitality shown by the representatives of the University of Pennsylvania.

At the regular business meeting held on December 29, the following was transacted. Election of officers for 1905: *President*, Professor Mary Whiton Calkins, Wellesley College; *Secretary and Treasurer*, Mr. William Harper Davis, Lehigh University; *Members of the Council to serve three years*, Professor Lightner Witmer, University of Pennsylvania, and Professor George M. Stratton, Johns Hopkins University. The following new members were elected: Dr. J. W. Baird, Johns Hopkins University; Professor I. Madison Bentley, Cornell University; Mr. Frank G. Bruner, Columbia University; Mr. C. T. Burnett, Bowdoin College; Mr. G. Cutler Fracker, Columbia University; Mr. V. A. C. Henmon, Columbia University; Dr. Edwin B. Holt, Harvard University; Professor Herbert G. Lord, Columbia University; Professor David R. Major, Ohio State Univer-

sity; Dr. W. P. Montague, Columbia University; Professor George R. Montgomery, Carleton College; Dr. Kathleen Carter Moore, 206 North 33d Street, Philadelphia; Professor Colin A. Scott, Boston Normal School; Mr. Luther A. Weigle, Yale University; Dr. William Morton Wheeler, American Museum of Natural History, New York City; Professor F. J. E. Woodbridge, Columbia University; Dr. Robert M. Yerkes, Harvard University.

Upon recommendation of the Council it was voted to amend Article IV of the Constitution to read as follows: Annual Subscription—The annual subscription shall be one dollar in advance.

Upon recommendation of the Council it was voted that two dollars of the annual subscription of each member for the year 1905 be remitted.

The Council reported an invitation from Harvard University to hold the next annual meeting in Cambridge to signalize the opening of Emerson Hall. Upon recommendation of the Council it was voted that this invitation be accepted, power being given to the Council to arrange otherwise in case circumstances might arise to make a change of plan desirable.

The report of the Committee on Bibliography which was presented at the annual meeting in St. Louis in December, 1903, and laid upon the table, was taken up, discussed and referred back to the Committee for a further report at the annual meeting of 1905.

A vote of thanks to the retiring Secretary was moved and adopted

REPORT OF THE TREASURER FOR 1904.

Dr.		
To balance at last meeting	$2,013.02	
Dues of members	423.00	
		$2,436.02
Cr.		
By expenditures for		
Printing	$ 25.30	
Postage	20.50	
Stationery	3.70	
Clerical assistance	35.00	
Telegram	.25	
Exchange	1.20	
		85.95
		2,350.07
Accumulated interest on deposits, approximate		320.00
		$2,670.07

LIVINGSTON FARRAND,
Secretary and Treasurer.

Abstracts of Papers.

The Experience of Activity. President's Address. By William James.

As contrasted with inactivity we have activity whenever we experience anything to happen. The word is here synonymous with process or event. Where a process has a direction and tendency, overcomes resistances, etc., we have activity in the completest sense. The notions of agent, effort, passivity, etc., arise in such experiences. The *nature* of activity is wholly given in the experience of it, just as every other elementary nature is similarly given. An activity-series is defined by its whence and whither. But each activity-situation is a segment in a longer experience-chain; and the more previous activity that gave the push, and the remoter goal that names the whither, are often substituted as defining a *more real* activity for the activity at first supposed. Our conscious activity-experiences are moreover proved to depend on neural activities of which we are unconscious; and these, since their failure will arrest the others, are in turn considered more real. Thus our immediate feeling of an activity going on may be deceptive as to *whose* and *what* the activity really is, and we have to define and locate it elsewhere than where it first appeared. But in its new situation it preserves the old nature, for the word activity can have no other meaning than what experience gives. We place all sorts of other things (as motions, sizes, colors, etc.), wrongly, but our need of translocating them does not expel their natures from the real world; and similarly an activity, to whatever more real source imputed, must either remain in the world as the same *kind* of thing we were originally talking about, or else be talked about under some other name.

The fact that activity-experiences of our own may involve or be involved in more real activities has led some writers to draw a sharp opposition between activity as humanly felt, and activity as an objective fact. They have different natures altogether, we are told, felt activity being an inert resultant and illusion, real activity being an efficacious force. But empiricism should reject this search for a transempirical 'activity in-itself.' Whoso feels himself sustaining a tendency against a resistance knows the *what* of activity through and through, and from within. There are other whats in the world, but of other 'activity' we have no right to speak. That activity, moreover, when once rightly located, possesses all the efficaciousness that can anywhere possibly be supposed. A tendency successfully sustained against resistance is the original of what we mean by efficacy. Other idea of efficacy than that we have none.

To seek deeper than all experiences for what makes experience *really so* is thus a fallacy. The problems of activity are practical, not metaphysical. Which activities, and whose, are the more real activities in the actual world? — these are the important questions, leading on the one hand to a forecast of remoter outcomes, and on the other to a more exact study of the relations of our *naïf* human experiences of activity to the short-span activities, whether neural or conscious, for which they seem to be substitutes.

Unperceivable States of Consciousness. By A. H. Pierce.

The doctrine of unperceivable sensations and sensation-differences has drawn its vitality for the most part from an argument which makes use of the axiom, if two things are equal to a third thing, they are equal to each other. Stumpf and Stout may be taken as representative advocates of this argument. In experimenting with slightly differing sensations, it frequently happens that two qualities or two intensities seem equal to a third whose stimulus lies midway between those of the other two, while the two sensations themselves are clearly distinguishable. This could not happen, the argument claims, unless the three sensations were actually different, for otherwise the above axiom of equality would be violated. Against this argument it may be urged that whenever the equality-axiom is employed outside of mathematics its correct statement should be — two things equal to a third under certain conditions are equal to each other *provided that the same conditions still prevail.* It is this continuance of underlying conditions that we are unable to guarantee when the comparison of sensations is in question. Indeed it seems not unlikely that the cerebral excitations caused by two closely similar stimuli exert upon each other a modifying influence, which is wanting when the difference between the stimuli is increased. Though lacking positive knowledge in the matter, should we not hesitate to base an argument upon the equality-axiom? For it is quite possible that the two sensations are compared with a third under conditions that do not hold good when the two are compared with each other.

A Field for the Study of Temperament. By Dickinson S. Miller.

The temperament of authors as traced, not through biographical gossip, but in their writings, proves a fruitful field for study. This is illustrated by the case of two contrasted types of temperament, the classic and the romantic. Five different bases of distinction and consequent definitions have been proposed by literary critics. If we

combine these we see the two types well marked and complete, and, looking closer, the psychological basis of the difference. The romantic temperament is marked by an excitable energy that enjoys its excitement; the classic by evenly inhibited energies.

Another illustration is found in two curiously contrasted individuals, both of the romantic type — who have evinced an antipathy for each other; Carlyle and Mr. Swinburne. Carlyle's imaginations are characterized by a passion for sensation of the kinesthetic order that accompanies the overcoming of resistance; Mr. Swinburne's by a passion for sensation of a diffused dermal and organic type such as accompanies exultant movement through unresisting or but slightly resisting media. This divergence goes far to explain the difference of their attitudes toward the concrete and abstract, toward pleasure, and toward liberty.

Examinations, Grades and Credits. By J. McKeen Cattell.

(This paper has appeared in full in the *Popular Science Monthly* for February, 1905.)

Perception of Children. By Will S. Monroe.

Tests of Growth of Mental Efficiency in Children. By E. A. Kirkpatrick. (Read by title.)

The six hundred children of the Model and Practical schools are tested every year. The report was upon a perception-motor test of making one hundred marks in fifty squares in which the figures 1, 2 or 3 indicated the number to be made in each square. Very backward children are quickly discovered by the test in the lower grades and there is some reason to believe that the test is valuable as a means of measuring the mental efficiency of younger children at least. Improvement is shown by years and by grades, especially in the lower grades. The effects of the test seem to carry over long intervals, as most of the younger children at least are better in the second and third test given after six months or a year than children of corresponding ages who are taking their first test.

Improvement with special practice is very marked, as was shown by a series of experiments on normal students, a girl of seven and a boy of five, the gain after ten trials being 18 per cent., 20 per cent. and 25 per cent. respectively. By practicing four times a day for a week the time of the little girl of seven was reduced from 64 to 43 seconds (41 is the average for girls of 14). Two weeks more brought it down to 35 and two weeks more to 30. The daily record was more

variable than for adults, indicating that the elements of desire and the power of self-direction are important and variable factors in experiments upon children. It also appears that in the case of children at least errors are more likely to vary inversely than directly with increase in speed. Further tests will be made to determine the relation of this test and improvement with practice in it, to other tests and to general mental efficiency.

Mental and Moral Effects Following the Removal of Adenoids. By EDWARD A. HUNTINGTON.

Three cases were presented which had been prepared in connection with his psychological clinic conducted by Professor Witmer at the University of Pennsylvania. These cases were offered as a contribution to the clinical psychology of mental and moral retardation and efficiency. In all the cases there was a history of mental and moral retardation and in two cases this was associated with marked physical degeneracy. Naso-pharyngeal adenoids and hypertrophied tonsils were present in each case. The surgical removal of growths and hypertrophied tissues followed by appropriate school training resulted in mental and moral improvement. The most striking case was a boy whose mental status was that of a middle grade imbecile upon entering special school No. 3, of which Mr. Huntington is principal. His pedagogical history showed that for three years in which he had been a pupil in the first grade of an elementary school four different teachers had attempted his instruction and discipline, and each had failed in turn. He was finally expelled and sent to the special school. Here he was accorded medical treatment and adequate school training. One year after the removal of the growths the child was promoted into the work of the second year, and it now seems safe to predict that his future progress will be steady and reasonably rapid.

Emotion and Motor-Sensation in Art. By COLIN A. SCOTT.

The fact that the span of consciousness is limited results in a part only of any whole reaction coming to consciousness at any one time. Every reaction is primarily adaptive, but situations occur in which the stimulus arising directly from the reaction is not sufficient to fill the span of consciousness and maintain the scene of a full and abounding life. Lack of interest, pain or ennui results. At this point, however, play or art may save the situation and fill the remainder of the space of consciousness with either perceptional or ideational elements which

do not increase or aid in the adaptive reaction. These form the esthetic or play component. The esthetic reaction is thus never pure but is always the by-product of some actual adaptive reaction reduced to a minimum.

The exploitation of a figure by the movement of the eyes in painting is a part of the adaptive component and in itself not esthetic. The physical movements in dancing are the reduced minimum of the adaptive movements of walking or running. The sensations of sitting on one's seat and looking at the stage in a theatre represent the adaptive. In all such cases the remainder of the span of consciousness is filled with what is distinctly felt as not aiding or hindering any adaptive reaction. The picture must have no grapes for the birds to pick. Although the drama may stimulate feelings of fear, these must not lead the audience to save themselves by flight. The adaptive component in each case thus acts as an inhibitive agent. This inhibition, however, is confined to action on the environment. Action on one's own body and idea representing the body are fully exploited in the esthetic reaction. In this direction motor elements are stimulated and not inhibited. Since the elements of the esthetic reaction are motor states felt to be internal, a reverberation of past evolutionary instincts comes to be an important and characteristic feature. The breadth of these leads to extension in the form of esthetic logic, representing the trend of the emotion, which is ultimately governed by climax or success.

Knee-Jerks without Stimulation of the Patellar Tendon. By EDWIN B. TWITMYER.

In normal individuals in whom the knee-jerk is readily obtainable a movement of the opposite limb can usually be observed when only one tendon is tapped. This phenomenon can be satisfactorily explained only as a reflex action. The possibility of eliciting this response when the opposite tendon is struck raised the question whether or not knee-jerks could be elicited without the usual tap on either tendon, *i. e.*, by the activity of some other stimulus. The results of an extended series of experiments upon six subjects were reported. Knee-jerks without taps on the tendons were obtained from all the subjects after a large number of preliminary experiments had been performed in which a bell was struck 150° before the blow fell on the tendons. These responses were not the result of voluntary effort on the part of the subject. Attempts to inhibit these kicks were wholly unsuccessful. The movement displayed the characteris-

tic jerky or explosive appearance of the true knee-jerk. The relation between the extent of the kicks of the right and left legs corresponds with the results obtained when the tendons were struck. The relations between the extent of the initial kick out of the legs and the first secondary swing remain constant for each subject, whether the movement follows the blow on the tendons or whether it follows the sound of the bell alone. Preliminary experiments with both the tap of the bell and the blow on the tendons were necessary before kicks could be obtained with the bell alone; the number varied from 150 to 238 trials. With an increase in the number of experiments performed the règularity of response with the bell alone was greatly increased. The movement in question can be explained only in terms of reflex action. The afferent excitation must reach the cord at the level of the medulla and then passes down to the second or third lumbar segment in which the cell bodies of the afferent conduction paths are located. The repeated association of the functioning of the motor cells of the lumbar segment of the cord upon which the kick immediately depends, with the excitation of centers in the nuclei of the medulla connected with the auditory conduction path, has resulted in the development of an unusual reflex arc. The results of the experiment furnish additional grounds for accepting the view of Erb and his followers as to the nature of the patellar tendon phenomena. No differences whatever are apparent in the character and extent of the movements with and without the blows on the tendons. The two movements differ only in the origin of the excitation and the spinal centers involved.

The Analysis of Reaction Movements. By CHARLES H. JUDD.

This paper reported a qualitative, rather than quantitative study of reactions. By means of a suitable apparatus graphic records were secured of all phases of reaction movements. It was found that no reactor lifts his finger from the key in a simple movement. Sometimes the reaction proper comes at the end of a gradual upward or downward movement. Sometimes sudden movements or rhythmical series of movements precede the reaction movement. Sometimes, as Mr. G. W. Smith has already shown, the reactor makes a sudden downward movement before raising the finger.

Many of these preliminary phases of reaction can be related to conscious processes, not merely or chiefly because they give rise to muscle sensations, but because they express the motor organization in the central nervous system which furnishes the physiological basis

for the processes of attention and rising expectation. These processes of attention and expectation are not forms or phases of consciousness depending upon any sensation factors. Nor do they depend on revived content factors. They belong to the conative side of mental life, and are easily understood when it is shown, as in the results reported in this investigation, that there is a fact of nervous expressive activity paralleling each of the manifold variations of attention and expectation arising in reactions.

Some Experiments on Lifted Weights looking toward a Re-statement of the Psycho-Physical Problem. By LIGHTNER WITMER.

Standard weight 100 grams, comparison weights 100, 102, 104, 106, and 108 grams. Time of stimulation 1 second, 2 seconds interval between the periods of stimulation, no greater interval between two pairs of weights lifted than between the lift of each weight of a pair. Thus there was no chronological grouping. It took six seconds to lift each pair of weights and to give a judgment as to whether the second weight was heavier or lighter than the first. A series, usually of 40 judgments, followed consecutively. The pairs of weights upon which judgment was given were 100 : 100, 108 : 100, 100 : 102, 100 : 104, 100 : 106, 102 : 100, 104 : 100, 106 : 100. The subjects were compelled to express a judgment even when the judgment was a mere guess. Equality judgments were not allowed. In case the judgment was a mere guess the subject added "D" meaning doubt. If his judgment was accompanied by a measurable degree of confidence he added "A, B, or C." The following table summarizes the results:

	H or L	Confidence.		Doubt.	
	Cases.	Cases.	Right.	Cases.	Right.
100 : 100	65	59	61	41	71
100 : 102	67	62.5	66	37.5	70
: 104	77	66	80	34	75
: 106	86	69.5	86	30.5	85
Average	77	66	77	34	77
102 : 100	50	63	58	37	36
104 :	56	62	66	38	41
106 :	64	67	74	33	43
108 :	66	65.5	69	34.5	53
Average	57	64	66	36	40

Each value in the table is the average result of 200 experiments each upon three different subjects. The table shows opposite each

pair the percentage of the heavier or lighter cases from 600 experiments, also the percentage of cases given with confidence and with doubt; the percentage of confidence cases that were right cases and percentage of doubtful cases that were right cases. Thus with the weights 102, 104, and 106 in the second position in a pair, 77 per cent. of the cases were right, 66 per cent. of all the cases were confident judgments and 34 per cent. were doubtful judgments. Of the confidence judgments 77 per cent. were right, while of the doubtful judgments the same number, 77 per cent., were right. With these comparison weights in the first position but 57 per cent. of the cases were lighter or right cases. Of these cases 64 per cent. were confident judgments, of which 66 per cent. were right; 36 per cent. were doubtful, of which only 40 per cent. were right.

The Order of Tone Sensations. By HUGO MUENSTERBERG.

It seems improbable that a final theory will recognize six light sensations only, but demand ten thousand tone sensations, while to the naive consciousness the manifoldness of the visual and of the acoustical fields seems more or less comparable. This striking difference in the theoretical construction is the result of the historical fact that the visual theory has been developed without any reference to anatomical observations, while the theory of hearing has been brought from the beginning under anatomical categories. If we take introspection as our starting point we must consider as qualitative elements those characteristics of the sound which indicate to us the differences of the various sonorous objects. If I hear one sound, I am interested to know merely whether it is sung or played on a piano, comes from violin, or trumpet, or bell, or whistle. Like a color, such an element can change in intensity and can mix with toneless sounds, the noises. But each sound, just like a color, can change in a distance series where every position has meaning only with reference to another member of the series. The drawing has two such dimensions, right-left and up-down; the violin sonata has also two such dimensions, the time-dimension and the pitch-dimension. As the painting combines a number of colors, each one distributed in both dimensions, so the orchestra combines the variety of timbre elements, each varying in time and pitch. The ten thousand strings of the basilar membrane which give the change of pitch correspond then to the ten thousand or more rods and cones which the light may successively stimulate in going up and down. The objective combination of tones in the simple timbre corresponds to the objective combination of colors in the white light, and the apparent subjective

discrimination of overtones is not a real resolution of the clang into elements. The relation between the two tones of an octave or a fifth would then no more be compared with relations between colors but with relations between the parts of a circle or an ellipse, while the harmony of different instruments would correspond to the harmony of different colors.

Combination Tones. By F. M. URBAN.

In a clang composed of two tones one can observe tones the pitches of which are in certain simple relations to the vibration number of the fundamental tones. One tone, which is called summation tone, corresponds to the sum of the vibrations; besides this there exists a tone with the pitch of the difference of the vibrations, which forms with the other elements of the clang difference tones of higher order. Difference and summation tones are called combinational tones; the name of Tartini's or Sorge's tones is less fitting as these acousticians observed only difference tones of first order, the summation tones being observed first by Helmholtz. A merely physical explanation is sufficient for these combinational tones which can be observed in the air outside the ear. This is always possible for the summation tones — although they are so faint that some observers have not noticed them — but for the difference tones it is only possible when they are produced in the same enclosed space. According to this criterion we distinguish subjective and objective difference tones. Helmholtz has adopted the theory that the subjective difference tones have their origin in the ear and that they must arise whenever the vibrations are so large that the second power of the displacement cannot be neglected besides the first. The mathematical theory shows further that an elastic body can perform such a movement only if it has a form unsymmetrical to the direction of the vibration; the tympanum is considered to fulfil this requirement. This theory explains only difference tones of the first order but not those of higher order. The requirement of the vibration to have a certain magnitude is only partially justified, as difference tones can be heard most distinctly when the intensity of the fundamental tones does not exceed a certain limit, and is certainly not fulfilled for difference tones of higher order, the intensity of which decreases rapidly. The anatomical relation to the tympanum does not agree with the fact that difference tones can be heard after operative destruction of the tympanum and the ossicles. The insufficiency of Helmholtz's explanation is not proof against the resonance hypothesis, but first of all a new theory of hearing would have to consider the problem of difference tones.

The Sense of Hearing in Frogs. By ROBERT M. YERKES.

(1) The green frog seldom gives a locomotor reaction in response to sounds, and thus far no characteristic anditory reflexes have been discovered. (2) That the animal hears is clear from the fact that croaking ceases when an auditory stimulus is suddenly given. (3) Experiments show that the reflex reaction to other stimuli, tactual for example, is modified by sounds. When the two stimuli occur simultaneously the reaction to the tactual stimulus is reinforced by the auditory; when the auditory stimulus precedes the tactual (this is possible because the auditory alone never causes a reaction) by more than three-tenths of a second, the tactual reaction is partially inhibited. (4) The auditory stimulus modifies the tactual reaction whether the frog be in air or in water, but the influence is lessened as the animal is more and more deeply submerged. (5) Thus far experiments indicate that the range of hearing extends from 50 vibrations per second to at least 10,000. (6) Apparently hearing is of less importance in the frog than vision. Sounds may serve as warnings of danger, but they do not bring about locomotor or flight reactions as do visual stimuli. (7) The tympanum is much larger in the male than in the female, and as might be expected there is some evidence that sounds produce more marked effects on the males than on the females.

Some Sex Differences. By R. S. WOODWORTH and FRANK G. BRUNER.

In connection with the anthropometric work of the Department of Anthropology at the St. Louis Exposition, men and women of several races were subjected to sense, motor and mental tests. In the motor tests men surpassed women, though the difference in quickness and in accuracy of movement was much less than in strength. In color perception, on the contrary, women surpassed, and this difference, like that in movement, held good in nearly every race and group examined. In visual acuity there was no uniform sex difference, for while white men saw better than white women, in most other groups the women surpassed. In a 'form test,' which consisted in fitting variously shaped blocks into corresponding holes, and which has proved to be more a test of intelligence than of perception of form, American men and women were about on an equality, whereas in the more primitive peoples the males were distinctly superior to the females.

Motor Correlations. By R. S. Woodworth and H. D. Marsh.

American adults were tested in strength of grip, speed of tapping and accuracy of hand movement. A high degree of correlation (Pearson coefficient = 0.5 + to 0.82) obtained between the right and left hands of a person in the same test; but a low correlation (0.08 to 0.34) appeared between the different tests of the same hand. In other words, a person's efficiency with one hand in any motor function is a fair index of how well he can do with the other hand; but a person's efficiency in one motor function is scarcely any index of his efficiency in others. The use of the single term 'motor ability of an individual,' to cover all sorts of motor functions, is therefore misleading.

Wundtian Feeling Analysis and the Genetic Significance of Feeling. By Margaret Floy Washburn.

The elaborate analysis of feeling which forms the most important part of Wundt's revised system of psychology is incompatible with his doctrine that feeling is purely subjective and based on the reaction of a simple apperception center. In particular, every attempt to explain the relation between a feeling quality and its components, or complex feeling and their partial feelings, results in referring the complexity to the sensational basis of the feeling. Analysis and subjectivity are incompatible notions. The chief source of perplexity in the problem of feeling lies in the failure to recognize intermediate stages between feeling and sensation; processes which while they ordinarily go unanalyzed because there is no need for analyzing them may with practiced introspection be recognized as complexes of organic sensation. To this class belong strain and relaxation, excitement and depression. Subjective is that which resists analysis, qualitative and local; objective that which allows it. Only pleasantness and unpleasantness are ultimately subjective in this sense.

The Isolation of Minds. By Dickinson S. Miller.

(1) What is called the subject of consciousness, or consciousness as distinct from its 'contents' or again the unity of consciousness, resolves itself into a relation between 'contents'; a relation which is ultimate, that is, not farther analyzable. It may most simply be called co-experience or empirical conjunction. (2) Contents not bearing this relation to each other are isolated in an ultimate sense, in a sense not further analyzable. A group of co-experience contents which as a whole is isolated is what we call a state or field of con-

sciousness. To it every other state or field is, in Clifford's term, ejective. The consciousness of another is ejective to mine, and my consciousness of yesterday ejective to my present consciousness. (3) The disjunction of experiences is absolute and admits of no degrees. The same may be said of their conjunction. It is the disjunction of experiences that presents the chasm over which, according to current metaphor, knowledge has somehow to pass. A consciousness foreign to my own is for me a 'thing in itself' (or 'for itself'). To say that we can know nothing of things in themselves is to say that we can know nothing of our neighbor's mind. (4) To say that one content can be a part of a larger field without consciousness of the fact, is to contradict oneself; it is to say that the same reality, in the same state, does, and does not, bear a certain relation to another. (5) The absolute discontinuity between fields of consciousness must be recognized by such doctrines of panpsychism as would transfer the continuities of the physical world of science for a world of sentiency. (6) The category of ejectivity or disjunction is of peculiar interest for the theory of knowledge. It cannot be derived from direct experience. Does the mind then possess it *a priori?* It is not necessary to assume this. The value of some conceptions lies not in their content but in their function. Thus the conception of nothing is in the main a certain fixed indisposition to entertain the thought of anything. The conception of infinity is the fixed indisposition to entertain the thought of an end. So the conception of ejectivity is the fixed indisposition to contemplate the content of a conceived foreign field as part of my own conceived field. The necessity is avoided by turning attention alternately to one and the other, and thus, with the aid of time, allowing a real disjunction to divide them. If we conceive nonentity, or infinity, or ejectivity, in a single state of thought we do so with the aid of symbols, generally physical.

The Nature of Consciousness. By FREDERICK J. WOODBRIDGE.

Consciousness cannot be defined in isolation, but only as it is given with a variety of contents as different as ideas and things, as an instance of that type of existence which may be described as the existence of different things together. Space, time and species are other instances of the same type, and afford such striking parallels to consciousness that consciousness may be defined as of the same general nature, namely, as a form of continuum or connection between objects. Such a definition reduces the problem of the relation of consciousness to other things to the problem of the relation of a continuum

to the things contained, and excludes such problems as interaction and parallelism. It forbids the description of contents as states of consciousness. It defines the isolation of individual consciousnesses, and by showing that different consciousnesses can be related only indirectly, clarifies the character of theories of perception. The distinctive feature of the connection of objects in consciousness is that in such connection they become representative, not of things of a totally different nature, but of each other, and thus make knowledge possible. It is to be noted that both the actual contents and limitations of knowledge are determined, not by the relation of consciousness to objects, but by the relation of objects to each other. The *esse* of the content is thus never *percipi*, but knowledge is palpably realistic. The most crucial instance of this realism is the discovery that consciousness has antecedent conditions of existence. These conditions appear to be events of the world which is eventually in consciousness, so that consciousness may be regarded as a special form of continuum or connection in which the events of the world may exist. When the world becomes known it has not been transformed into ideas, but has simply been connected in a new way. For the clarifying of this connection the idea of a continuum is suggestive.

A Suggestive Case of Nerve Anastomosis. By GEORGE TRUMBULL LADD.

This particular case of nerve anastomosis was performed by Dr. Harvey Cushing, of Baltimore, in the spring of 1902. It consisted of uniting the distal end of the facial nerve, which had been completely severed by a bullet wound, with the accessory end of the central nerve of the shoulder. On the tenth day after the operation the patient was sent home, provided with a small galvanic battery for electrical treatment, and required to exercise his facial muscles daily before a mirror. By persistent efforts at voluntary control during 287 days, at the end of this period the action of the individual groups of muscles of the face had quite completely returned, and could be effected without associated muscles of the shoulder or contraction in the facial muscles; and the emotional expression had considerably improved, although not to the same extent. An analysis of the phenomena seems to show that under the stimulus of will the cortical center of the accessory nerve had assumed new and more complicated functions. The higher visual, emotional and voluntary centers had somehow established new connections with this lower center; and the cortical center of the facial nerve had found the way to control the facial muscles by the round-

about path of the center of the accessory nerve. Some evidence also exists to induce the belief that these intra-cerebral readjustments had resulted in stimulating hitherto undeveloped nerve fibers. Such astonishing results from persistent volitional efforts seem to add their testimony to scores of other facts in discrediting both the idealistic and the psycho-physical parallelistic theories of the relations of body and mind.

The System of Values. By HUGO MUENSTERBERG.

The aim is to classify our absolute values, those experiences, that is, which we appreciate for their own sake and which are therefore ends in themselves, and secondly to examine whether one common principle controls the whole system. If we seek absolute values, we must take the standpoint of immediate experience and not the standpoint of causal science, which is itself the product of valuation inasmuch as it has transformed reality in the service of certain valuable logical purposes. We find values in four spheres, firstly in related experiences, secondly in isolated experiences, thirdly in the changes of experience and fourthly in the supplementations to experience. Each time we have to separate the given and the created values. In the related experiences we find the value of validity to which we submit ; it is given as existential knowledge and created as scientific knowledge. In isolated experiences we find the value of perfection which is given in harmony and created in beauty of art which we enjoy. In the changes or transformations of experience we find the value of achievement which we approve ; it is given as development and created as civilization. In the supplements to experience we find the value of completeness in which we believe ; it is given as religious conviction and created as philosophical conviction. Each of these eight values refers either to the outer world or to fellowmen or to the self. We have accordingly existential knowledge of objects, of subjects and of obligations ; scientific knowledge of causal truth, historical truth and logical truth ; harmony in natural beauty, sympathy, happiness ; beauty of arts in fine arts, poetry, music ; development in natural progress, social progress, self-realization ; civilization in technique, law, morality ; religious convictions in belief in God, belief in immortality, belief in providence ; philosophical convictions in epistemology, practical philosophy, and metaphysics. There is one category common to these twenty-four classes of values: the category of identity. As the same simple principle of attraction controls the changes of the physical world from the falling apple to

the moving star : the same principle of identity determines value in the world of subjects from the beauty of a circle or the truth of arithmetic to the highest human value of morality and philosophy and religion. It is impossible to demonstrate this in a short abstract of a paper which is itself a short abstract of a forthcoming book.

The Time of Perception as a Measure of Difference in Sensations. By VIVIAN A. C. HENMON.

Differences in sensations are equal if they are discriminated with equal ease. A measure of the time necessary to perceive differences in sensations is therefore a measure of the differences themselves. In this way it is possible to discover with what differences for consciousness either relatively or absolutely equal objective differences in quality or intensity are correlated. Experiments on qualitative differences in color, equal intermediate steps between orange and red, show that with the equal decrease in differences between two pairs of stimuli goes a markedly greater increase in the differences in the time of perception. The curve of increase agrees very well with that obtained by the usual psycho-physical methods. Experiments on the time of perceiving differences in lengths of lines, in which field Weber's law holds within certain limits, show on the application of Fechner's formula of difference that the differences in the times of perception increase inversely as the logarithms of the quotients of the magnitudes of the stimuli. Individual differences in sensibility and sense deficiencies can be determined by this method. If, for instance, a person be color-blind, it will take him a longer time to distinguish the reds and greens than the blues and the yellows. To measure this cards were prepared on one set of which blues and yellows in various shades and tints were mounted, on the other reds and greens, and the time of distribution taken. The person of normal color-vision takes no longer to distribute the reds and greens than the blues and yellows, one deficient in color-sense takes much longer and thus discloses his defect.

Additional Experiments on the Photography of the Eye. By G. M. STRATTON.

The experiments here reported were made with the eye viewing a great variety of figures, and the eye's action was mechanically recorded by photographing the movements of a beam of light reflected from the cornea. In addition to the fact that our enjoyment of linear gracefulness cannot be attributed to any ease or grace in the eye's own

motion, — a result already reported in the Wundt *Festschrift* — the present experiments indicate: (1) That the Wundt-Lamansky law of eye-movements is by no means a universally valid formula. While horizontal movements are frequently along lines that are approximately straight, yet vertical movements are much less commonly straight. Diagonal movements frequently approximate the Wundt-Lamansky description, but straight diagonals are by no means rare. (2) The linear illusions of Müller-Lyer, Zöllner and Poggendorff frequently occur with exactly such eye-movements as have been supposed to be their cause. But the illusions also occur in the absence of such movements, and indeed when the very opposite kind of movement is being performed. So that any special form of eye-movement is evidently not a necessary condition of the rise of these illusions. (3) In viewing symmetrical figures, the eye's movements are usually unsymmetrical, at least when such figures are most enjoyed. The more symmetrical movements were called out when the observer was in doubt whether the figure was exactly symmetrical. Our enjoyment of symmetry accordingly cannot be explained by the balance or pleasure in the eye movements which symmetry invites.

Intermittence of Vision. By EDWIN B. HOLT.

The periodically spaced bandings observable on the after-image streak produced by a luminous image travelling on the retina cannot be explained by the theory of retinal undulations advanced by Professor Auguste Charpentier. Professor Charpentier's observation, on which he bases his theory, that these bands become narrower and lie nearer together as the image moves more rapidly, is incorrect. The bands follow precisely the opposite law. Neither are these bands due, as has often been said, to the same mechanism as the recurring after-images seen after a momentary exposure of the eye to a stimulus that is not moving; for if they were they would necessarily travel after the moving stimulus, keeping at constant distances behind it. Whereas the bands do not move at all, although the system of bands, as a whole, moves because the rear band is always disappearing, while a new band is being deposited on the front of the system, by the moving stimulus. The bands are due to some intermittence of the visual mechanism, whereby the nervous process set up by the moving stimulus is periodically inhibited, so that the stimulus instead of leaving behind it in consciousness a continuous after-image streak, leaves a discontinuous succession of after-images each one of which is of approximately its own size and shape. These several images behave

like ordinary after-images; for an instant after their generation they become larger than the retinal image of the object should seem to warrant, and then grow gradually smaller in all dimensions and feebler in intensity, until they fade away. There is no reason for supposing this intermittence to be a function of the retina. Like the many other cases of periodic sensory inhibition it is more probably due to some process in the central nervous centers.

The Effect of Eccentric Visual Stimulation on Fixation. By RAYMOND DODGE.

Replying to certain criticisms of his method of photographic registration of the eye movements, Mr. Dodge described the records of a photographic ophthalmometer. Besides constituting data of the most accurate sort for determining the shape of the cornea, these records indicated the importance of certain precautions in the photographic registration of the eye movements by means of the corneal reflection. Since at the extreme periphery the cornea is quite irregular, altogether the most favorable position for the corneal reflection is the optical axis of the cornea or points symmetrically disposed about it. A source of error which menaces alike all exact studies of the eye movements and many apparently unrelated fields of optics is given in the minute but almost continuous involuntary movements of the eyes during so-called fixation. Photographic registration of these errors of fixation shows that, notwithstanding the most elaborate precautions, movements of the head had not been entirely eliminated. Besides the actual displacement of the eyes with the head, the recorded errors showed distinct coördinate compensatory eye movements, more or less exaggerated by the mechanical interference with the head movements. Abstracting from the influence of the head movements there remain marked irregularities in fixation. In one subject involuntary eye movements of unusual amplitude were found in the place of a hitherto undiagnosed astigmatism. The best known effects of eccentric stimulation constitute further disturbances of fixation. Notwithstanding the conviction, based on introspective data, that an eccentric point of interest may be maintained without occasioning actual eye movement, photographic registration showed in every case distinct and characteristic eye movements. Even when not attended to, eccentric stimuli increase the general instability of fixation whenever they notably diminish the clearness of the fixation mark. They may on the other hand serve a very different function. In certain definite relations to the point of fixation they reduce the amplitude of the involuntary eye movements. For all

three subjects studied a dot was the most unsatisfactory fixation mark, permitting eye movements of the greatest amplitude with the conviction of accurate fixation. Equally unanimous was the effect of eccentric stimuli in the form of radiating lines. A line diminished the amplitude of transverse involuntary eye movement. The fixation of a line as a whole was less irregular than the attempt to fixate a definite point on the line. The results unequivocally condemn the usual point-like fixation mark, whenever even approximate fixation is required. They also furnish the clearest evidence that normal fixation is not a simple mechanical fact but a relatively complex functional process dependent primarily on the clearness of the visual image.

The Fixation of Points in the Visual Field. By CLOYD N. MCALLISTER.

This paper was a report on work done for the purpose of determining the behavior of the eye while fixating points. The observer was required to fixate a simple point for a short time, then move the eyes to the right through an angle of about ten degrees, to another simple point or to a point from which lines were drawn. Several movements from the simple point to the point on the right and back to the simple point again were recorded for each observer. The records were made with an Edison kinetoscope camera, at the rate of nine exposures per second. During any period of 'fixation' there was a rapid change of position of the eye over a considerable area about the point. The point to be fixated seldom if ever fell upon the exact *fovea centralis*. In moving from one point of fixation to the other, when both points were simple, the distances were not well taken at first and a corrective movement was required; such a movement was not required after the second or third excursion. When the point on the right was surrounded by lines, the fixation was changed in character, the estimation of the distance between the points very uncertain, the direction of the movements between the points disturbed. When a horizontal line cut by three perpendicular lines was fixated at the points of intersection the character of the fixation periods did not differ apparently from the fixation of a simple point, the distance from one intersection to another was correctly taken after two or three trials, and the eye followed the horizontal line very closely in making the movements. The two eyes do not move with perfect symmetry. During any period of fixation the small eye movements, which apparently are muscular tremors, may be in opposite directions, or the lines showing the paths of the movements may be at any angle. The lack

of coördination of the movements of the two eyes is emphasized by one record which showed that the right eye had moved through an arc of about ten degrees to the second fixation point, while the left eye was still at the first point.

The Fixation Pauses of the Eye in Reading. By WALTER F. DEARBORN.

Photographs made with a modification of the Dodge photographic apparatus of the movements of the eye of different individuals and of the same individual in different readings of the same page, show considerable variation in the number, duration, and relative position within the line of fixation pauses and in the character of the connecting movements. The differences between children and adults were found to be in the general unsteadiness of fixation and inaccuracy of movement of the former. In the speed of movement, and in the number of fixations they did not differ materially from adults. It appears probable from various irregularities and movements of the eyes even in the case of adults, that fixation is not always a matter of a distinct resting or pause even with several millimeters or letters of the line, but that in successive fixations of the same object any one of the several retinal points lying close to the fovea will satisfy equally well the requirements of what is objectively the same fixation, and that there are also movements of the eyes within these limits which do not denote changes in objective fixation. Secondly, there are more or less distinct pauses or breaks in the movement of the eye which are probably periods of significant stimulation, and finally, a shifting of the position of the eye due to various causes shows that our conception of what we mean in general by fixation will need to be modified.

Psychology of Æsthetics: — I. Experimental Prospecting in the Field of the Comic. By LILLIEN J. MARTIN.

This investigation was undertaken for the purpose of becoming directly and personally acquainted with some of the problems involved in that which is termed 'the comic,' and to ascertain by actual trial the possibility of applying satisfactorily certain well known psychological methods to the solution of such problems. In this work of orientation the following methods were employed:

A. *Undirected Introspection.* — Here only workers of long experience in the psychological laboratory participated. Three series of experiments were made — *Series a*, serial method — the comic pictures were shown in turn to the reagent and he recorded his introspec-

tions. *Series b*, paired method — two comic pictures were presented simultaneously to the reagent for the same purpose. *Series c*, in which a single comic picture was placed before the reagent for five minutes to observe and report on the course of the comic impression.

B. *Experiment.* — Six series of experiments were made in which the various psychophysical methods were applied to investigating the comic: *Series 1*, in which the *method of impression with serial judgments* was used to ascertain: (1) the constancy of the comic impression, *a*, from day to day, *b*, from moment to moment; (2) whether the comic impression was renewed, increased, or decreased through interspersing pictures not before seen, through forced or spontaneous laughter, through drinking coffee, through sickness and low spirits, through the rigid holding of the body or through laying aside the pictures that had ceased to be funny for several months and then reëxamining them. *Series 2*, in which the *method of constant differences* was employed to learn whether time and space differences ('errors') were present in the experiments with comic pictures. *Series 3;* here the *method of averages* (suggested by methods of 'average error') was used (1) to find in what direction a preceding comic or sad picture affected the judgment of the succeeding comic picture and (2) to investigate the relation of smiling and laughter or a tendency in that direction to the judgment given regarding the degree of funniness. *Series 4* was a mass experiment in which the *method of choice* was applied to ascertaining (1) the influence of smiling and sober faces upon the comic impression, (2) the effect of the size of a picture upon the strength of the comic impression, (3) in this connection experiments were also made to find out the effect of movement upon the comic impression. *Series 5. The method of gradual variation* (suggested by the method of 'minimal changes') was used for the purpose of determining whether there is, in the case of a single individual or of individuals as a whole, any particular degree of exaggeration which makes a given thing most comical. *Series 6. The method of expression* was applied to ascertain the peculiarities of the pneumographic and sphygmographic curves when the stimuli were comic pictures.

Summary of Results. — The experimental results show (1) that the comic impression from a picture decreases in the same experiment from moment to moment and in successive experiments from day to day, and that the rapidity with which this occurs depends partly at least upon the complexity of the details; (2) interspersing new pictures between the old, forced or spontaneous laughter, drinking coffee,

good physical condition and high spirits, a non-rigid holding of the body and a longer period between the exposures of a given set of pictures, help the comic effect; (3) that time differences may exist when two pictures are successively examined and compared, that is, differences growing out of the fact that one picture is seen before the other; also time influences, that is, differences arising from the unequal loss or gain of fun in the norm and the comparison at the same sitting and successive sittings; (4) that space differences which depend on whether a picture is at a reagent's right or left also exist when two pictures are compared; (5) that a sad or comic fore-picture affects the comic impression received from a given picture; (6) that the direction of the judgments of the degree of funniness and of the tendency to smile and laugh take a similar course; (7) that the presence of a smiling and doleful face in a picture increases its funniness; (8) that increasing the size of a picture and moving it help its funniness; (9) that the method of gradual variations is particularly adapted to investigating the particular degree of exaggeration which is most comic; (10) looking at comic and other pictures and listening to jokes increased both the rapidity of the breathing and of the pulse.

C. *Directed Introspection.* — The introspection was directed by means of a questionary. Since all previous investigation of the comic has been equivalent to using a questionary and one person answering the questions, it has seemed desirable to employ this method also, in spite of the fact that suggestion must play an important rôle in using it. Moreover, an attempt was made to give this method in some slight degree the character of a psychophysical measurement method through the introduction of judgment categories and a comparison of the introspections regarding the phenomena observed with the judgments given. In one case, that of imitation, the conclusions drawn from the questionary have been put to the test of experiment, in which persons who had had experience in the psychological laboratory took part. The material used in the experiments was largely composed of pictures taken from comic papers. A full account of this research appears in the January number of the *American Journal of Psychology*.

The Synthetic Factor in Tactual Space Perception. By THOMAS H. HAINES.

An investigation in tactual localization by Weber's second method is reported. The observers were six with normal vision and seven blind. The object of the experiments was to show the function of the

visual image in tactual localization. This is shown by a comparison of average errors in 24 points on the volar surface of the forearm for the normals and for the blind, and for the normal with natural attention and the same with a special effort at visualization. It is assumed in common with a goodly number of psychologists that the visual factor will show itself in the better localization (smaller error) on the sides of the arm. This effect is manifest in only four of the six normal observers, and in some of these the excess error in the middle is so small as to be attributable to accidental causes. One of the blind observers gives the same result. The normal observers with special effort at visualization also reverse themselves and give the smallest average error in the middle. The blind observers, with the exception of two, give the smallest error on the *radial* (far) side of the arm. The direction of error is predominantly peripheral and *radial* for the blind, while it varies greatly in the normal, and some of them show different tendencies on different parts of the arm. This coördination of least error on radial side and dominance of radial errors seems to indicate, in a preliminary way, the typical reaction of the blind where the visual image is surely excluded. This is probably due to the greater tactual functional significance of the radial side of the arm. Local signs and inner tactual sensations are thus better coördinated. The introduction of the visual image evens all parts up to this. But the importance of the visual image has been overestimated. It does not have the influence in better localization which has been attributed to it. Introspections of both the blind and seeing observers indicate that the inner tactual sensations of the touching and the touched member play a much more considerable part than has been attributed to them. But the question as to what that part is — an important question not only in tactual space perception, but also in individual psychology — is not answered here. The function of this paper was rather to get the question definitely raised.

The Plot Interest. By WILLARD C. GORE.

Recent discussions of philosophic method, particularly those involving the so-called pragmatic method, have incidentally brought to light wide differences in standpoint, so temperamental, so individual, as to arouse a psychological interest. Philosophy in the making is clearly psychical. It was not the object of this paper to discuss these individual differences in philosophy, but to raise the more general and preliminary problem as to what is the psychical character, the 'mental pattern' of the philosophic interest. For the purpose of raising and

to some extent defining this problem the following hypothesis was stated: The type of interest known as philosophic assimilates to that fundamental and familiar type of interest known as plot interest. Philosophic interest and plot interest are related as species and genus. Within the plot interest two types of interest are discriminated. (1) Interest in following, or rather inactively pursuing the course of the plot; interest in a conflict, in suspense, in whatever challenges speculation; in a word, the æsthetic interest. (2) Interest in constructing, in weaving the plot; in working it out to a consistent whole; in a word, the artistic interest. These two types are normally alternating and correlative. The isolation of either gives rise respectively to æstheticism and to formalism. The æsthetic and artistic types of interest pre-figure the two limits within which philosophic activity falls; namely, the speculative and the systematizing limits. The speculative, Platonizing interest in philosophy corresponds to the æsthetic interest in plot. The systematizing, organizing Aristotelian interest in philosophy corresponds to the artist's interest in plot. The two interests in philosophy are normally correlative and alternating, within the experience of the individual. The isolation of either gives rise respectively to some form of Neo-Platonism or mysticism, on the one hand, and to some form of scholasticism on the other. The affinity of the philosophic interest for the plot interest rests upon the inherent nature of all thinking to be dramatic, in the sense of being the reflection, the rehearsal, of situations involving conflict and readjustment.

Recent Theories of Genius. By I. WOODBRIDGE RILEY.

The literature of genius during the last two years presents two tendencies: Negative against the Lombrosian or pathological school; positive toward the explanation of genius as a superb synthesis of normal functioning. There is also a popular attempt to make genius a manifestation of the unconscious. The results of these investigations are apparently contradictory. (1) The pathological school (Lombroso, Nordau, Nisbet) makes genius a neurosis of an epileptoid nature and like insanity a phase of a morbid susceptibility; its opponents say there is here no necessary lack of balance in the cerebro-spinal system (Stanley Hall, Moebius, Flechsig). (2) The physiological school conceives a genius as a higher faculty depending upon a given physical endowment (Allara, Renda), others say there are certain mysteries of endowment not open to analysis (Jastrow, Nazzari). (3) The social school considers the great man the essence, the index, or the initiator of social progress (Séailles, Joly, Baldwin); against this some hold that

the causes of production of great men lie in a sphere wholly inaccessible to the social philosopher (James, Spiller). (4) The subliminal school postulates an extra, subconscious personality with superior memory, imagination and inductive powers (von Hartmann); on the contrary others assert that such a consciousness is not an inner light, not a peculiar supernormal activity (Fullerton, Jastrow). But the subliminal considered as the minimal consciousness offers the best explanation of the apparent neuropathic or psychopathic characteristics of genius. Recent experiments in the discrimination of auditory and visual stimuli just above the threshold of consciousness might explain, for example, hyperæsthesias of genius.

The Three Types of Religious Consciousness. By F. C. DOAN.

Recent investigations of religious consciousness have exhibited two rather different methods of approach to the field at large. The most popular of these is of course the questionnaire method. There begins to recommend itself, however, another method of approach, namely, that which proposes to exhibit the motives underlying comparatively large religio-social groups. This method insists that the data supplied by the large sect, church, tribe, race and world movements are the really significant deposits of spiritual purposes. Both these methods are essentially pragmatic. Reality is held to be religiously significant only in those spots where it has been mellowed by the persistent rappings of spiritual impulses. On the basis of the second of these methods we may say there are three types of normal religious consciousness: the rational, the emotional, and the active or pragmatic. The first of these seeks to fill in the gaps of an otherwise self-contradictory reality with the solid masonry of an unyielding dialect. The emotional or mystic temperament floats over these gaps by sheer force of good feeling. The pragmatic type avoids the gaps altogether and follows the well beaten paths of its practical experience of the ultimate. It experiments with its gods. In some cases it retains an assortment of gods each a specialist in his proper field. Sometimes it adopts a surreptitiously deified man of the tribe; sometimes it accepts a becoming god whose affinity is moral rather than ontological. The history of religions is really a record of the almost uninterrupted triumph of the practical over the speculative and emotional in the religious consciousness of the race. Moreover, the religious culture of to-day is more intensely practical than ever before in the history of the race. The paper closed with, (1) A classification of great religious movements according to these three types, and (2) some suggestions as to the probable physiology of the types.

An Historic Note on Hypnotism. By BROTHER CHRYSOSTOM. (Read by title.)

A. So far as the present writer knows the word *hypnotic* occurs for the first time in English in a curious passage to be found in a book of the seventeenth century. It is entitled "*A Ternary of Paradoxes: The Magnetic Cure of Wounds; The Nativity of Tartar in Wine*; *The Image of God in Man.* Written originally by Joh. Bapt. Van Helmont, and translated, illustrated, and ampliated by Walter Charleton, Doctor in Physick, and Physician to the late King. London. Printed by James Flesher for William Lee, dwelling in Fleetstreet, at the sign of the Turkshead, 1650." This is the *second* impression. The passage in question occurs in § 154 of the tract on the 'Magnetic Cure of Wounds' and reads: 'To this series belongs the subductive virtue of Cathartic or Purgative, the somniferous faculty of *Hypnotick* or dormative *medicaments*, etc.' I have been unable to find a copy of the Latin original of Van Helmont, and therefore I do not know whether the term was coined by Dr. Charleton.

B. In Harper's *Metaphysics of the School*, Vol. III., Pt. I., pp. 350, 351, and footnote, occurs an interesting application of Baron von Reichenbach's theory of the *od* to the question of indistancy, with corollaries referring to the 'evil eye,' animal magnetism, hypnotism, etc. As a relaxation one may then take up Gantier's 'La Jettatura,' which is capitally written.

C. The relation of hypnotism to fundamental principles of philosophy and theology is probably best treated by the Dominican professor Coconnier in his thoughtful book, '*L'hypnotisme franc.*'

FOURTH ANNUAL MEETING OF THE AMERICAN PHILOSOPHICAL ASSOCIATION.

The fourth meeting of the American Philosophical Association was held in Philadelphia, December 28–30, 1904, about sixty members attending. There were five sessions besides the evening meeting for the president's address on the twenty-ninth. Twenty-four papers were read, six others were read by title. The social features included the annual dinner of the Naturalists and the affiliated societies and a joint smoker with the American Psychological Association. The following officers wers elected: *President*, Professor John Dewey (Columbia); *Vice-President*, Professor J. A. Leighton (Hobart); *Secretary-Treasurer*, Professor J. G. Hibben (Princeton); *Members of the Executive Committee for two years*, Professor H. N. Gardiner (Smith), Dr. R. B. Perry (Harvard). It was voted to hold the next meeting in Cambridge, the association accepting the invitation of the Philosophical Department of Harvard University to take part in the inauguration of the new Emerson Hall of Philosophy. It was also voted to invite the Western Philosophical Association and the Southern Society for Philosophy and Psychology to meet with the association at that place and time.

Abstracts of Papers.

President's Address: *The Mission of Philosophy*. George Trumbull Ladd.

This address will be printed in full in the March number of the *Philosophical Review*.

Morning Session, Dec. 28.

Knowledge as the Subject of Epistemology. Walter T. Marvin.

The subject of epistemology is not knowledge in the concrete, but completely rationalized knowledge. This is an idealized abstraction. No such knowledge exists as a concrete psychosis; it exists as an element in some psychoses. Its office is to narrow the field of risk in the non-rational processes involved, *e. g.*, in discovery, invention and the practical conduct of life. It itself deals only with present data; it does not predict. In its extreme form it would block all venturesomeness on the part of knowledge. It is the struggle of the mind

towards complete rationality which forms the true subject of epistemology.

The Something in Thought besides Idea. EDWARD S. STEELE.

A vindication of the judgment as the unit of thought rather than the idea. We find in thought besides ideas meaningful elements (constituting logical form) significant for the thought process only, and not reducible to idea.

The Growth of Concepts. GEORGE R. MONTGOMERY.

Concepts are to be regarded as variable functions one of another, as calculus uses the word function. Notions of calculus, therefore, are best fitted to represent the mobility of concepts. With this representation we can see that in the analytic-synthetic processes the whole depends for its meaning on the parts and shares in their changes. The epistemological unit, therefore, is not the sensation, nor the term, nor the proposition with the copula, but the analytic-synthetic triad. The proposition with the copula is merely one leg of the analysis.

The Metaphysical Status of Universals. WILMON H. SHELDON.

The universal or general concept can be fully defined in functional or dynamic terms as a particular image or response plus a suggestion of further possible similar images or responses. The suggestion is due, not to our mind, but to the nature of the particular content; it is a concrete fringe of the image or response. Thus a universal is quite concrete and as real as any individual fact or event.

Truth and Practice. A. E. TAYLOR. (Read by title.)

Afternoon Session, December 28: Commemorative of the Centenary of the Death of Kant, the Southern Society for Philosophy and Psychology Coöperating.

Kant's Doctrine of the Basis of Mathematics. JOSIAH ROYCE.

Kant's theory of the basis of mathematics has been in one respect wholly abandoned, and properly so, by the modern logic of mathematics; the certainty of mathematical science is no longer regarded as depending on the necessity of constitutionally predetermined forms of perception. In another respect, so far, namely, as he declared that constructive synthesis and observation of its ideal results are both necessary for mathematics, Kant was unquestionably right. And as nobody before him had so clearly seen this fact, and as the progress

of mathematical logic since has been profoundly influenced by his criticisms, we owe to him an enormous advance in our reflective insight in this field.

Kant's Attitude towards Idealism and Realism. EDWARD FRANKLIN BUCHNER.

By collecting and classifying chronologically Kant's various expressions of his conception of idealism and realism, the paper offered a new point of view for estimating the idealistic or the realistic outcome of the Critical Philosophy.

The Present Significance of Kant's Ethics. W. CALDWELL.

This significance is due to Kant's spiritual philosophy of human nature. This spiritual philosophy is implied in all recent attempts to treat moral judgment as one of valuation; in recent epistemological assumptions about personality; in the theory of sovereignty or autonomy in the ethics of Social Democracy. The independence of ethics both of metaphysics and of naturalism is an important part of Kant's teaching. Again, his emphasis on the standard as the law of personal dealing in a social realm frees us from many of the difficulties of the teleological moral philosophy of the present. Kant's version of the standard is also the one most consonant with a true theory of moral progress.

The Significant and the Non-Essential in Kant's Æsthetics. JAMES H. TUFTS.

The more significant doctrines or suggestions are those of the social implications in the æsthetic judgment, of the freedom and enhancement of life in the æsthetic attitude, and of the organic relation of æsthetics to philosophy.

The Influence of Kant on Theology. GEORGE WILLIAM KNOX.

The effect of the Kantian criticism was three-fold: (1) The doctrine that God was unknowable led some theologians to regard theology as impossible, while others had recourse to revelation, the conception of God being retained in its pre-Kantian form; (2) a larger and more influential body of theologians attempted a reconstruction, rejecting the notion of God's transcendence and seeking to find Him immanent in the processes of the mind, either in feeling, with Schleiermacher, or in thought, with Hegel; (3) a movement which may be classed as Neo-Kantian and which is practical and professes to be scientific — the theology of the school of Ritschl.

Kant and Aquinas. BROTHER CHRYSOSTOM. (Read by title.)

In spite of marked differences in point of view, Kant and Aquinas have many points of contact. Both go back of the oppositions given to each respectively to find a common principle, Aquinas for the construction of a synthetic, Kant for the construction of an analytic philosophy. Kant was prevented by his excessive distrust of the principle of authority, by his solitary life and by his mental rigidity from giving to his system a solid foundation in the real order. Aquinas, on the other hand, joined to exceptional natural gifts the advantages of travel and of instruction under one of the most learned men of the day (Albertus Magnus), and to the precision of the logician the skill of the poet; he was therefore the possessor of sympathy and insight. A detailed comparison of the views of both thinkers regarding the limitations of our cognitive powers brings out many more points of contact.

Morning Session, December 29: Joint Session of the Philosophical and Psychological Associations.

Wundtian Feeling Analysis and the Genetic Significance of Feeling. MARGARET FLOY WASHBURN.

The Isolation of Minds. D. S. MILLER.

The Nature of Consciousness. FREDERICK J. E. WOODBRIDGE.

A Suggestive Case of Nerve Anastomosis. GEORGE TRUMBULL LADD.

The System of Values. HUGO MÜNSTERBERG.

[For abstracts of these papers, see pp. 49–53.]

Afternoon Session, December 29.

Consciousness in the Brutes. GEORGE V. N. DEARBORN.

The presumption that the nervous system is the physical basis of consciousness is unwarranted, because the metabolism of the nervous system is inadequate to the empirical nature of the mental process. On the other hand, the unique complexity of the structure and the metabolism of protoplasm in general corresponds more nearly to the extensity and intensity of empirical consciousness. The nearly perfect analogy between the anatomy and the physiology of man and those of the most complex brutes amounts to a demonstration of the latter's consciousness, while the principle of continuity warrants a belief that

all animals are conscious, the simplest experiencing little but sensation and 'will,' while cognition develops probably with the comprehending functions of the nervous system.

The Psychological Self and the Actual Personality. JOHN ALEXANDER LEIGHTON.

The aim of this paper was to show that psychology neither in its structural nor in its functional analysis does justice to the actual personality. The latter was shown to be manifested and realized in the teleological constructions of historical culture, and the ultimate condition of human culture systems was asserted to be a transcendent and rational dynamic unity manifested in empirical, historically conditioned individualities.

The Relational Theory of Consciousness. W. P. MONTAGUE. (Read by title.)

The theory that consciousness is a form of relation between objects is compared on the one hand with the Cartesian and Berkeleyan conception of consciousness as an entity or substance, and on the other with the Spinozistic and Huxleyan conception of consciousness as an epiphenomenal series of secondary qualities, parallel to the physical series of primary qualities.

An Interpretation of Aristotle, de anima, III., 7, 431 a 16–b 1. W. R. NEWBOLD. (Read by title).

The passage is not, as commonly supposed, a repetition of the theory of simultaneous perception of concretes by the common sense. It is an application of that theory to the simultaneous perception of a concrete (*αἴσθημα* or *φάντασμα*) and the corresponding intuition (*νόημα*, *τι ἦν εἶναι*). So in the second of the propositions *Γ* and *Δ* stand for the *νοήματα* of white and black, *e. g.*, color analytic of the eye and color synthetic of the eye. The sentence *καὶ ταῦτα ἓν τῷ ἀνάλογον* shows that the consciousness of that wherein two presentations differ (*τί*, not *ὅτι*) consists in grasping simultaneously the presentation in question and the *νόημα* of the other.

Primary and Secondary Phases of Causality — Natural Science Founded on the Latter and Theology on the Former. WILLIAM T. HARRIS.

A chain of secondary causality cannot be thought by itself as without the need of a first cause. Any link which originated causality would in so far have to be a first or primordial cause. All secondary

causes belong to the pole of the effect. The larger the sphere of the effect the more influence and power in the cause producing such an effect. If therefore the chain of secondary causes be supposed infinite, there must be presupposed an infinite causal influence. If this is denied, all of the links of the chain transmit, and no link originates. But in that case there is no causality to transmit. The denial of a first cause is the denial of all secondary causes and consequently the denial of the entire sphere of causality in experience, and the supposed pole of experience, which notes things and events as derivative, is all an illusion.

The Agnosticism of Herbert Spencer. GABRIEL CAMPBELL. (Read by title.)

Spencer, by heredity a non-conformist, displayed an impulsive antipathy to authority, political as well as religious. Bodily infirmity prevented him from attending school and devoting himself to books, thus debarring him from being a scholar in philosophy or an expert in science. Mentally a castle-builder, with the ambition of a reformer, his copious writings are sagely devised, but impractical. Early championing evolutionism, he aims to displace a supreme ruler; the absolute reality is characterized as unknowable. Freedom of will is excluded by irreversible law. His absolute morality would be intermediary between empiricism and idealism. He finds religion indispensable, but his theistic ideas are incoherent.

Morning Session, December 30.

Deism in America. I. WOODBRIDGE RILEY.

Confining itself to the rise of deism in Yale College, the paper discussed the deistic influences in the writings of Bishop Berkeley, Dr. Samuel Johnson, Rector Clap and President Stiles. The latter's reading of Shaftesbury, Leland, Middleton, Hume and Lord Kames was shown to have incited Stiles' remarkable appeal for freedom of thought, now first given in its entirety from hitherto unpublished documents.

Philosophy and Immortality. FRANK S. HOFFMAN.

Recognizing that human immortality is a matter of high or low degree of probability, the author attempts to establish it from the three standpoints of the origin and nature of man, the rationality of the universe and the moral perfection of God.

Gambling as Play: its Nature and the Moral Character of it. HERBERT G. LORD.

This paper was an endeavor to determine with some degree of precision the nature of gambling in general and of gambling as play in particular. The second part of the paper was a search for some solid basis for the moral judgment of gambling as play. After an examination of the various objections to it, no justification of its almost universal condemnation was found.

Remarks on Ethical Method. H. W. WRIGHT.

This paper suggests an evolutionary interpretation of morality. Moral development is treated as a process of organization in which purposive activity is the principle of unity and the different virtues are necessary stages.

Stages in the Discussion of Evolutionary Ethics. THEODORE DE LAGUNA.

The stages are severally concerned with a supposed conflict between ethics and evolution; with the setting up of evolutionary laws as a standard for morality; with the treatment of ethical problems in terms derived from the theory of organic evolution; with the assertion of the distinctive nature of social and of specifically moral evolution; and with questions of method.

Is there a Distinct Logic of Historical Construction? PERCY HUGHES.

A clear perception of action as the concept of historical construction would bring about important results: adequate instruction in history in the schools; the inclusion in the work of the practical historian of the progressive realization of truth and of beauty; and the definition and evaluation of the economic, social and other lines of historical development.

Methods of Studying the History of Philosophy. J. MACBRIDE STERRETT. (Read by title.)

The methods described and criticized from the point of view of the 'organic' theory of the history of philosophy, namely, that it is the work of one mind through the ages on the same problem of the most universal concrete principle back of, in and constitutive of the whole of experience, were the biographical, the merely historical or

learned, the merely sceptical, the eclectic, the *tendenz*, the modern historical, the critical and the philosophical, or method of Hegel. The last was the one commended.

[For the fuller report of the meeting, see the 'Proceedings' of the Association in the March (1905) number of the *Philosophical Review*.]

H. N. GARDINER.

PROCEEDINGS OF THE FIRST ANNUAL MEETING OF THE SOUTHERN SOCIETY FOR PHILOSOPHY AND PSYCHOLOGY, BALTIMORE, MD., AND PHILADELPHIA, PA., DECEMBER 27 AND 28, 1904.

Report of the Secretary.

The first annual meeting of the Southern Society for Philosophy and Psychology comprised two sessions. The first session was held in the Philosophical Seminary room of McCoy Hall at the Johns Hopkins University, Baltimore, Md., on Tuesday, December 27, at which the papers by the members, mentioned below, were read before the Society. The second session was held in College Hall at the University of Pennsylvania, Philadelphia, Pa., on Wednesday, December 28, in connection with the American Philosophical Association, the occasion being in commemoration of Immanuel Kant. About fifteen members were present.

The Society was organized to stimulate interest in philosophy and psychology in the academic institutions in the southern portion of the United States, which have for the most part hitherto lain outside the field of the active influence of the two older American associations.

Special features of the Baltimore session were the entertainment of the Society at luncheon by Professor and Mrs. J. Mark Baldwin, and the cordial welcome on behalf of the Johns Hopkins University by President Ira Remsen.

At the business meeting, held on December 27, the constitution was adopted, the membership elections made by the organizing Council ratified, and the officers for 1905 elected as follows: *President*, Professor J. Mark Baldwin, Johns Hopkins University; *Vice-President*, Professor Edward A. Pace, Catholic University of America; *Secretary-Treasurer*, Professor Edward Franklin Buchner, University of Alabama; *Members of the Council:* to serve one year, Professor J. A. Quarles, Washington and Lee University, and Mr. Reuben Post Halleck, Louisville, Ky.; to serve two years, Professor J. MacB. Sterrett, George Washington University, and Professor A. C. Ellis, University of Texas; to serve three years, Dr. William T. Harris, Washington, D. C., and President D. B. Purinton, West Virginia University.

The president and the vice-president were appointed a committee to determine in consultation with similar committees of the American Philosophical Association and the American Psychological Association the conditions of common membership on the part of those who belong to two or more of these organizations, and to consider the matter of affiliation in general.

The Society adopted an arrangement with the PSYCHOLOGICAL REVIEW, whereby subscription to this journal was offered to members in consideration of the payment of the annual dues of three dollars, except in the case of those who already subscribe to the journal, for whom the membership fee is to be one dollar. The Society, in accepting this plan, agreed not to misuse this privilege to the impairment of the present subscription list to the journal.

ABSTRACTS OF PAPERS.

Baltimore Session.

The Poggendorff Illusion. By W. M. STEELE. (Read by title.)

Influence of Secondary Stimuli in Certain Complex Perceptions. By HAYWOOD J. PEARCE.

This paper dealt with the results of some experiments recently conducted in the psychological laboratory of Brenau College. It was shown that if a single line (8, 10 or 12 centimeters in length) be taken as primary stimulus and other lines varying in length from 2 cm. to 18.0 cm. be taken as secondary stimuli, the presence of the secondary stimulus in the complex perception causes an apparent increase in the length of the primary stimulus so long as the secondary lines are shorter than the primary. The maximum effect is produced when the secondary is one half the length of the primary, and there is no apparent change in the length of the primary when it is equal to the secondary. When the secondary becomes longer than the primary the latter is made to appear shorter than it does when not accompanied by secondary stimuli.

The second group of experiments showed the effect upon the position in the visual field of a dot, 2 mm. in diameter, produced by the presence of a second dot, 5 mm. in diameter, and at varying distances. It was shown that the first dot or primary stimulus was displaced in the direction of the second or secondary stimulus.

In all of these experiments the author found evidence to corroborate the results of experiments previously reported,[1] and in harmony

[1] The method of conducting these experiments as well as the arrangements of primary and secondary stimuli was described in the PSYCHOLOGICAL REVIEW, Vol. XI., No. 3.

with the hypothesis that the effect of the secondary upon the primary stimulus varies directly as the product of their masses or lengths, and inversely as the square of the distance between the two.

The author cited references to experiments made by himself upon tactual space perception, and, in general, the phenomena of illusion, visual and tactual, as the basis for the following generalization:

Whenever consciousness becomes spatial in character the laws which operate between bodies in space as a whole also operate between the elements of that portion of space which is represented in consciousness. When any portion of space is isolated in consciousness as conscious phenomenon there must take place a readjustment of the elements of this ideal space world or microcosmos. In the process of readjustment the laws of the microcosmos prevail.

The author does not attempt, for the present, to decide whether the interaction between primary and secondary stimuli is a direct one or whether it is indirect and mediated by the attention.

Some Oddities of Sensory Discrimination and Memory. By G. M. STRATTON.

The experiments here reported were made for the purpose of gathering material for a comparison of the different senses with respect to their retention of intensities. With this idea in mind, two sorts of determinations were made for each person experimented upon, namely: (1) The person's power of discrimination when but a brief interval (2 seconds) elapsed between two impressions to be compared, and (2) the change which occurs in his power of discrimination when the interval is lengthened many times (120 seconds). Experiments were made in passive pressure, active strain, hearing and sight; and, to make the comparison just, identical methods were employed in all these fields.

The main result obtained is that the rank of the senses in their ability to retain a given intensity is about the reverse of their rank for the general purposes of knowledge. The best of the senses as regards intensive memory is active strain, next comes passive pressure, and lowest in order come the 'higher' senses, hearing and sight — sight being poorest of all. But though this ranking is quite a departure from what common sense would have given beforehand, yet upon reflection it is seen to be in keeping with the different degrees of usefulness which the retention of intensity possesses in these different sensory fields.

In addition to the answer thus obtained to the main problem of

the investigation, it is interesting to note that very many of the observers in certain of their senses made considerably finer discriminations with the longer interval of time than with the shorter. And, finally, the curious fact comes out that the intensity which after an interval is subjectively identified with the intensity originally given, takes such different courses in the different senses, and in the same sense according as the interval is long or short. Distortion is apparently a universal trait of memory. And in general the 'higher' senses of hearing and sight are those in which this tendency to distortion is most strong.

The Meaning of Analysis in Psychology. By EDWARD A. PACE. (Read by title.)

Dualism. By JAS. A. QUARLES.

The monistic instinct has shown itself in the speculations of the philosophers of all ages. Dualism, the rival, is seen in all the sciences; throughout every realm of thought and thing we see it more or less absolute and irreducible. Moreover, the dualistic principle has been generally recognized in all the philosophic theories of ancient and modern times.

These dualisms are not all of the same kind or degree; some may be bridged by continuity, others are cases of correlation; but some are of kind, and are irreducible.

There are three fields where we find this last class. In ethics we have the antithesis of right and wrong. In theology a similar distinction of the radically and eternally good gods and evil gods has been held; but here there is a more important dualism of opinion as to the simplicity or complexity of the Divine Nature. In ontology we have its most contested sphere.

In the world of being, complexity is confessedly apparent, but is it real? So the unsophisticated mind persistently believes. The apparent diversity must be accounted for; if not in the noumenon, how did it come in the phenomenon? The dualism of the infinite and finite can neither be bridged nor denied. Materialism and idealism refute each other, and by their positive teachings confirm dualism. The absolute monisms agree only in denying the reality of the apparently dual, while they antagonize each other as to what the primary monad is.

But are monism and dualism irreconcilable? May it not be that God is the primitive, unitary being, the single, complex source of all existence, by whose omnipotent fiat the diversified universe has come

to be? A God of infinite power can have produced any kind of a universe: all matter, all mind, both, or neither, or merely phenomenal. Has He made a dual, plural, complex world? The ablest and most extreme monists have not been able to rid their theories of the dualism of mind and matter.

Moreover, facts show the reality of this dualism. Matter and mind are forces which have distinct modes of action. Matter always acts under the law of unreasoning necessity, while mind as regularly moves with the freedom of reasoning liberty. Again, matter, in all its forms and in all its forces, is divisible and exclusively appropriable; while mind, in its truths, thoughts, feelings, and purposes, is neither divisable nor exclusively appropriable. Only one person can eat any one apple in its entirety; but unnumbered millions can at the same moment possess the same truth in its integrity.

So mind and matter are a differentiated duad. Matter is extension: divisible, limited, exclusively appropriable, forced. Mind is thought: indivisible, infinite, the common property of all, free. The law of continuity does not bridge the chasm. The true ontology is a primary, original monism — variously styled Substance, the Absolute, the Logos, the intelligent and moral Will, but preferably God, the cause of all complexity — and, along with this primary monism, a secondary, derivative dualism of infinite and finite, creator and creature, right and wrong, matter and mind.

The Introspective Method. By J. W. BAIRD.

A Comparative Study of Religious Systems. By D. B. PURINTON.

Religion is universal. It is the human differential, found wherever man is. Its developments are Protean in variety, from the simplest to the most complex forms. Such students of religious systems as Max Müller, Brinton, Clark, Fairbairn, Renan, Whitney and others have offered divergent methods of classifying them. Among these suggested classes are the following: true and false religions, revealed and natural, individual and national, Biblical and non-Biblical, monotheistic, ditheistic and polytheistic. Perhaps the best division is, tribal, ethnic and catholic religions.

All these faiths, even the lowest type called fetichism or animism, have certain important spiritual doctrines in common. Witness the following: (1) Belief in a superior spirit; (2) conviction of the right and duty of worship; (3) belief in the independent existence of the human soul; (4) conviction of sin and of consequent guilt; (5) belief in immortality; (6) expectation that righteousness shall be rewarded

and wickedness punished after death; besides this common ground each great religion has an area of useful truth peculiar to itself. In Egypt the immanence of God in nature was emphasized. And particularly in the 'human form divine.' This is the secret of pyramid, sarcophagus, hieroglyph and embalming. Every mummy is 'on a Pilgrim's Progress to Paradise.' Brahminism is a spiritual religion, all for the next world, nothing for this. Buddhism is altruistic, brotherly, virtuous, but unfortunately atheistic. Confucius taught purity of life, but did not know much about God. The ancient Persian faith is a persistent dualism between good and evil. Ormuzd and Ahriman are everlastingly striving for supremacy. In the Pantheon of Scandinavia there are two similar gods, Odin and Loki. The Elysian fields of Valhalla are reserved for the brave, the damps of Nifelheim for the cowards. The ancient Greek was esthetic, humanitarian. He loved beauty and pleasure, and never took his religion very seriously. The Roman was a man of affairs. He put the state first, respected military might, worshiped the emperor. Mohammed taught a pure monotheism, but deified omnipotent will and degraded love. A survey of all religions discovers something good and true in each of them.

Christianity includes all the good in other faiths, and much more peculiar to itself. And this latter element is incomparably most vital of all. Witness the following beliefs found nowhere outside the Christian faith: (1) Holiness of God, (2) love of God, (3) spiritual helplessness of man, (4) divine redeemer of men, (5) union of faith and reason in religion, (6) union of masculine and feminine virtues in human character and life. Christianity is immeasurably superior to all other religions in that it leads to holiness of heart and virtue of life, unites the deepest thought of the mind with the loftiest aspiration of the soul and lays upon both the enduring blessing of heaven.

Philosophy as Developed according to the Tendencies of the American Mind. By GEORGE L. RAYMOND.

Professor Raymond noted certain characteristics in art, politics and religion, of the English mind from which, through lineage or literature, our countrymen mainly derive their tendencies, in connection with which he spoke of insight and invention as those which we had chiefly developed. He contrasted the representation of stories in an English picture with the French conception that they should not be represented, also the representation of principles in English political parties with that of classes in French parties, and the agitation of

religious reform in England through dissenting churches with the adherence of the French, notwithstanding much skepticism, to a single church. He recalled also how the American's neglect of form, even when apparently necessary, had given rise to the term 'shirt-sleeve diplomacy,' and how the opposite trait in the Frenchman had caused him to be caricatured on the stage as always dancing attendance upon trivial surroundings. From such data he drew the conclusion that the American had a natural tendency to be interested in what was underneath the form, which, in philosophy, would mean idealism. He pointed out, too, that a philosopher, to have permanent influence in a country, ought to have a system in harmony with the mental bias of his countrymen. He thought it pertinent, therefore, to ask in what way the physiological investigations of the day, with their undoubted tendency toward materialism, might, with no detriment to their legitimate influence, be accommodated to idealistic requirements. He thought that this might be done in the recognition of the duality of consciousness. The body, he argued, was part of the non-self, by being conscious of which, through using memory and reasoning, exercised in experience and experiment, we attained to what in science is termed knowledge. But, he said, we are besides this conscious of a self which, while connected with the body, differs from it. As the consciousness of the non-self leads, through reasoning, to a conception of the environment of the non-self; so a consciousness of the self, through the same process of reasoning, leads to a conception of the environment of the self. The first conceptions that we get through the non-self are of space and time; the first conceptions that we get through the self are of infinity and eternity, and so on. From the testimony of the non-self we advance, through processes of memory, reasoning and experiment toward what is termed knowledge; from the testimony of the self we advance, in the same way, toward what is termed faith. As men are as much governed by faith as by knowledge, we have here not a theory but a fact, which philosophy should explain. Faith, though of supreme importance in religion only, is as necessary to science as knowledge, though of supreme importance in science only, is to religion. In conclusion, the philosophic relation of this subject to psychic research was pointed out. The interest of the philosopher in this is connected with the question whether, in certain hypnotic or trance states, an intelligent self can leave or enter a body, or whether all the phenomena can be attributed to telepathic or subconscious influence.

Address of the President: *Sketch of the History of Psychology.* By J. MARK BALDWIN.

An interpretation based on the development of self-consciousness in the individual. (The address is to appear in full in the March–May issue of the PSYCHOLOGICAL REVIEW.)

Philadelphia Session.

The program commemorative of Immanuel Kant, in conjunction with the American Philosophical Association, at which the Society was represented by Professor Edward Franklin Buchner, is reported in full in the Proceedings of that Association, see pp. 65–67.

LIST OF MEMBERS.

Arnett, Professor L. D., Epworth University, Oklahoma, Okla.

Baird, Dr. J. W., Johns Hopkins University, Baltimore, Md.

Baldwin, Professor J. Mark, Johns Hopkins University, Baltimore, Md.

Bierly, Professor H. E., Grant University, Chattanooga, Tenn.

Buchner, Professor E. F., University of Ala., University, Ala.

Cranford, Professor W. I., Trinity College, Durham, N. C.

Davis, Professor N. K., University of Va., Charlottesville, Va.

Denny, Professor C., Vanderbilt University, Nashville, Tenn.

Ellis, Professor A. C., University of Texas, Austin, Tex.

Farrar, Dr. C. B., Sheppard-Pratt Hospital, Baltimore, Md.

Flinn, Professor J. W., South Carolina College, Columbia, S. C.

Franklin, Mrs. C. Ladd, 220 W. Monument St., Baltimore, Md.

Furry, Mr. W. D., Johns Hopkins University, Baltimore, Md.

Griffin, Professor E. H., Johns Hopkins Univ., Baltimore, Md.

Halleck, Mr. Reuben Post, Boys' High School, Louisville, Ky.

Harris, Dr. W. T., 1360 Yale St., N. W., Washington, D. C.

Lane, Professor W. B., Randolph-Macon Woman's College, Lynchburg, Va.

Laws, Dr. S. S., 1733 Q St., N. W., Washington, D. C.

Lefevre, Professor A., Tulane University, New Orleans, La.

Lodge, President L. D., Limestone College, Gaffney, S. C.

Meyer, Professor Max, University of Missouri, Columbia, Mo.

Pace, Professor E. A., Catholic University of America, Washington, D. C.

Parrish, Miss S. C., State Normal School, Athens, Ga.

Pearce, Professor H. J., Brenau College, Gainesville, Ga.

Purinton, President D. B., West Virginia University, Morgantown, W. Va.

Quarles, Professor J. A., Washington and Lee University, Lexington, Va.

Raymond, Dr. G. L., 1810 N St., Washington, D. C.

Roark, Professor R. N., Kentucky State College, Lexington, Ky.

Rose, Professor W., Peabody Normal College, Nashville, Tenn.

Steele, Professor W. M., Furman University, Greenville, S. C.

Sterrett, Professor J. MacB., George Washington University, Washington, D. C.

Stratton, Professor G. M., Johns Hopkins Univ., Baltimore, Md.

Swift, Professor E. J., Washington University, St. Louis, Mo.

Weir, Professor E. E., Cumberland University, Lebanon, Tenn.

Williams, Professor H. H., University of North Carolina, Chapel Hill, N. C.

Williams, Mr. R. D., Johns Hopkins University, Baltimore, Md.

PROCEEDINGS OF THE FIRST CONGRESS OF EXPERIMENTAL PSYCHOLOGY, AT GIESSEN, APRIL, 1904.[1]

The association of experimental psychologists which held its first meeting at Giessen in April last started out under most favorable auspices. Its membership of 85 includes the most prominent experimentalists of Germany, France and Switzerland, together with a scattered representation from several other countries. The forty papers which constituted the program of the initial meeting covered a wide range of topics. The secretary's report of the proceedings is prefaced by a sketch of the movement which led up to the organization, a statement of the constitution of the congress and a list of its members; the bulk of the volume is however devoted to a summary of the papers read and the discussions aroused. In numerous instances reference is made to the publications in which the papers will be found *in extenso*.

A comparison of the topics discussed with those treated in previous congresses of somewhat similar character, seems to indicate that the psychologists of to-day are disposed to push their investigations more and more into the fields of the 'higher' mental processes, — a tendency which is no less marked in the recent literature. If this can be taken to mean that psychologists are now even moderately satisfied that their foundations are securely laid and that they now feel themselves sufficiently well equipped to grapple with the more complex problems, it is a welcome and hopeful sign.

It is impossible within the compass of a review, to do justice to all of the papers which were read at the congress. The *Bericht* presents them in extremely condensed form — in some instances at the expense of clearness — and yet they cover 127 pages. This review will be obliged to content itself with an enumeration of the subsections and titles, and with such brief comments as will, it is hoped, enable the reader to understand the general character of the treatment accorded to each topic.

[1] *Bericht über den ersten Kongress für experimentelle Psychologie, in Giessen, 1904.* F. SCHUMANN. Leipzig, Barth, 1904. Pp. XXV + 127.

I. INDIVIDUALPSYCHOLOGIE, pp. 1–3.

V. HENRI: *Ueber die Methoden der Individualpsychologie.* The questionnaire and the biography methods are of little value; even the more thorough-going methods have so far failed to furnish an adequate characterization of individual differences.

II. PSYCHOPHYSIOLOGIE DER SINNE, pp. 4–45.

G. E. MÜLLER: *Die Theorie der Gegenfarben und die Farbenblindheit.* Proposes several modifications of the Hering theory, to enable it to give a more satisfactory account of color blindness. F. SCHUMANN: *Ein ungewöhnlicher Fall von Farbenblindheit.* Green is seen as gray, but the red-process is present. Contrast and color-equation experiments are described. A. GUTTMAN: *Untersuchungen an sogenannten Farbenschwachen.* Describes the characteristics of two types of weak color-sense; ascribes the abnormality to a central origin. V. BENUSSI: *Ein neuer Beweis für die specifische Helligkeit der Farben.* Change of brightness may arise without changed condition of retinal adaptation; specific brightness cannot therefore be referred to a different accumulation of retinal substance. H. EBBINGHAUS: *Die geometrisch-optischen Täuschungen.* The results of experiments in which familiar forms of illusions were presented to touch, and to vision with unmoved regard, show that the movement factor does not furnish an adequate explanation. A. TSCHERMAK: *Neue Untersuchungen über Tiefenwahrnehmung mit besonderer Rücksicht auf derer angeborene Grundlage.* Binocular localization in depth is universally associated with disparation; double-images are an essential factor. S. EXNER: *Ueber die Wirkung mehrfacher Rindenoperationen auf den Sehakt.* An explanation of certain hitherto unexplained results of cortical extirpation on the assumption that sense-impressions normally arouse excitation-complexes, which spread out over the cortex and finally act upon the motor centers through the association fibers. F. SCHUMANN: *Die Erkennung von Buchstaben und Worten bei momentaner Beleuchtung.* The various types of imagery coöperate in the reproduction of the image of the stimulus, but this reproduction does not itself constitute cognition. STRUYCKEN: *Bestimmung der Hörschärfe in Mikromillimetern.* Intensity of sound stimulus must be calculated in terms of energy; methods and results of determining auditory acuity. S. ALRUTZ: *Neue Untersuchungen über Hautsinnesempfindungen.* Describes a method of arousing paradoxical sensations of cold, sensa-

tions (?) of moisture, of smoothness and of itching. G. HEYMANS: *Intensitätskontrast und psychische Hemmung.* Suggests an interpretation which correlates contrast with psychical inhibition.

III. GEDÄCHTNIS, pp. 46–55.

G. E. MÜLLER: *Bericht über Untersuchungen an einem ungewöhnlichen Gedächtnis.* Demonstrates a remarkable memory (visual type) and describes the process of acquisition. A. WRESCHNER: *Experimentelles über die Association von Vorstellungen.* Reports quantitative results showing the influence of age, sex and education upon association times of various sorts. K. GORDON: *Ueber das Gedächtnis für affektiv bestimmte Eindrücke.* Reproduction and recollection are not influenced by the pleasant-unpleasant character of stimuli. P. RANSCHBURG: *Ueber die Bedeutung der Aehnlichkeit für das Erlernen, Behalten und die Reproduction.* Memory is more rapid, more tenacious and more comprehensive for dissimilar than for similar contents; the homogeneity or heterogeneity of previously and subsequently presented contents is also of influence. The fusion of identical contents — simultaneous or successive — is a fundamental characteristic of mind. R. MÜLLER: *Ueber das Wesen des Reproductionsvorganges.* The anticipation of result is of primary, and the conative-affective processes of secondary significance in voluntary movemen.

IV. VERSTANDESTÄTIGKEIT, pp. 56–71.

O. KÜLPE: *Versuche über Abstraktion.* Experiments with variously different groups of nonsense-syllables show that a given complex is apprehended differently when one is interested in its form, or in the color, the number or the nature of its components. Certain partial contents (form and color) are more readily abstracted from the complex than are others (number and nature), *i. e.*, it is least easy to determine how many and which letters are presented. Külpe concludes that psychical processes must be distinguished from our consciousness of them, and pleads for a rehabilitation of the old doctrine which recognizes an internal sense set over against consciousness. He defines abstraction as that process by means of which the logically or psychologically effective (*Wirksame*) is separated off from that which is logically or psychologically non-effective (*Unwirksame*). C. SPEARMAN: *Die experimentelle Untersuchungen psychischer Korrelationen.* Deduces formulæ whose employment has led the author to the significant conclusion that constant correlations may be established between the different mental capacities of the individual, and

that these latter depend upon a single common factor. ELSENHANS: *Die Aufgabe einer Psychologie der Deutung als Vorarbeit für die Geisteswissenschaften.* Our knowledge of the mental life of others is reached through an interpretation of their expressions and products. The author discusses points which must be considered in a theory of interpretation.

V. BEWUSSTSEIN UND SCHLAF, pp. 72–79.

W. WIRTH: *Zur Frage des Bewusstseins- und Aufmerksamkeitsumfanges.* The reproduction method (tachistoscope experiments) of measuring the compass of consciousness takes cognizance of only the maximal degrees of consciousness. The comparison methods give more complete determinations. Preliminary report of experiments. W. WEYGANDT: *Beiträge zur Psychologie des Schlafes.* Determination of mental capacity before sleep and after sleep of different durations; tests in addition and in memorization yielded different results. E. CLAPARÈDE: *Biologische Theorie des Schlafes.* Proposes to supplant the toxic theory by an instinctive theory.

VI. AUSDRUCKSBEWEGUNGEN UND WILLENSTÄTIGKEIT, pp. 80–90.

N. ACH: *Experimentelles über die Willenstätigkeit.* Introspective reactions show that the idea of the goal to be reached arouses determining tendencies which effect a realization of intention and also establish new associations. These tendencies make it difficult to discover what factors are operative in giving rise to intention or decision. G. MARTIUS: *Zur Untersuchung des Einflusses psychischer Vorgänge auf Puls und Atmung.* Discusses reasons for the contradictory character of the results yielded in the investigation of this problem. R. SOMMER: Demonstrated apparatus for transposing pulse movements into tones, and for representing expressive movements in the form of light and color. M. ETTLINGER: *Einige Bemerkungen über Nachahmung.* The association explanation of imitation is preferable to the instinct theory. V. HENRI: *Ueber die Koordination von Bewegungen.* This paper is not summarized in the *Bericht.*

VII. GEFÜHLE UND AESTHETIK, pp. 91–97.

ELSENHANS: *Bemerkungen über die Generalization der Gefühle.* Discusses two ways in which the feelings may become generalized. K. GROOS: *Die Anfänge der Kunst und die Theorie Darwins.* The theory that art owes its origin to courtship seems

plausible in the case of birds, but it breaks down when applied to the higher animals. The character of the facial adornment employed by primitive man, and the relatively non-sexual character of primitive poetry and dancing testify against the Darwinian hypothesis. SIEBECK: *Ueber musikalische Einfühlung.* A discussion of the affective and objective factors in *Stimmung* and *Einfühlung.* K. MARBE: *Ueber den Rhythmus der Prosa.* Marbe finds German prose compositions — literary and scientific — to be characterized by certain rhythms which contribute to their æsthetic effect.

VIII. KINDERPSYCHOLOGIE UND PÄDAGOGIK, pp. 98–114.

W. AMENT: *Das psychologische Experiment an Kindern.* The incomplete development of the mind of the child is a chief obstacle in the path of the investigator, since it renders reasoning by analogy precarious. Ament enters a plea for the method of pure observation. W. A. LAY: *Ueber das Wesen und die Bedeutung der experimentellen Didaktik.* Points out differences between psychological and paidological investigation, and insists upon the importance of the study of pedagogy. W. STERN: *Die Sprachentwickelung eines Kindes, insbesondere in grammatischer und logischer Hinsicht.* The linguistic material acquired through imitation is worked over spontaneously by the child; the principle of analogy is followed; compounds and derivatives are formed in a novel and ingenuous manner. Ease of pronunciation is a chief factor in the determination of what material shall be selected. The course of the acquisition of language is from the affective to the objective. Those time-words (verbs and adverbs) which refer to the immediate future, are the first to be employed. In sentence building, the child progresses from the 'word sentence' to the group of words, and subsequently to the chain of sentences. Subordinate clauses are a relatively late acquisition.

IX. KRIMINALPSYCHOLOGIE, pp. 115–120.

MARIE BORST: *Zur Psychologie der Aussage.* Pictures were exposed and after an interval (three to nine days) the observers testified to what they had seen. The results show that women excel men both in fidelity and comprehensiveness of testimony; that reliability of testimony decreases with increase of time intervening between experience and report, but that subjective assurance does not decrease; objects and persons are most fully and faithfully described, colors least so; the capacity to testify can be improved by training.

X. PSYCHOPATHOLOGIE, pp. 121–122.

R. SOMMER: *Objective Psychopathologie.* Sommer has been engaged for years in an attempt to lay the foundations for an objective science of psychopathology, by the introduction of appropriate methods of experimentation. His investigations have been concerned chiefly with the motor symptoms of pathological conditions of mind. His method consists essentially in the registration of the expressive movements, and in plotting his results in such form as will represent the progressive stages of disease, and the comparative symptoms of different diseases.

XI. REAKTIONSVERSUCHE, pp. 123–127.

N. ACH: *Ueber das Hippsche Chronoskop.* A discussion of the latent time of the chronoscope. H. T. WATT: *Mitteilungen über Reaktionsversuche.* A report on the rapidity of various sorts of associations. E. BECHER: *Ueber den Chronographen und das Tachistoskop von Erdmann und Dodge.* A demonstration of a chronograph and a tachistoscope.

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FACIAL VISION.

Facial Vision: A Supplementary Report with Criticism. R. MACDOUGALL. Amer. J. of Psychol., 1904, XV., 383–390.

Professor MacDougall has reëxamined a brief research made by Dresslar in 1893 on facial vision — 'the capacity to perceive the presence, and with more or less exactness to discern the character, of the objects in proximity to the blindfolded subject.' Mr. Dresslar concluded that facial vision is a real process of perception which is strictly auditory and mediated by the ear. But Professor MacDougall is convinced that other than auditory factors were significant. So he repeated the experiments with slight differences and also found that 'a true perceptual process is involved in the phenomena.' But in addition to hearing, the sense of temperature may play an important part; either factor may be the prevalent one in different individuals.

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BOOKS RECEIVED FROM JANUARY 5 TO FEBRUARY 5.

Soziologie. R. EISLER. Weber's illustr. Katechismen. Leipzig, Weber, 1903. Pp. viii + 305. 12mo. M. 4.

Analytic Interest, Psychology and Synthetic Philosophy. J. S. ENGLE. Baltimore, King Bros., 1904. Pp. xvi + 295.

Theosophy and the New Psychology. A. BESANT. New York, Lane, 1904. Pp. 135. 12mo.

Suggestion und Hypnotismus in der Völkerpsychologie. O. STOLL. 2. Ausg. Leipzig, Veit, 1904. Pp. x + 738. M. 16.

Twenty-first Annual Report of the Bureau of American Ethnology (1899–1900). Twenty-second Annual Report, etc. Parts I and II (1900–1901). J. W. POWELL, Director. Washington, Gov. Print. Office, 1903 and 1904. Pp. lx + 360, and xliv + 320, 372.

Principles of Physiological Psychology. W. WUNDT. Vol. I. Trans. by E. B. TITCHENER. London, Sonnenschein; New York, Macmillans, 1904. Pp. xvi + 347. $3.00. [Contains the 'Introduction,' and Part I., 'On the Bodily Substrate of the Mental Life'.]

Art in Theory. G. L. RAYMOND. 2d ed. New York and London, Putnams, 1904. Pp. li + 286.

Sociological Papers, 1904. GALTON, WESTERMARCK, AND OTHERS: with Introduction by JAMES BRYCE. Vol. I. of Publications of the Sociological Society of London. London, Macmillan & Co., Lim., 1905. Pp. xviii + 292.

Hypnotismus und Suggestivtherapie. M. HIRSCH. New ed., edited by L. HIRSCHLAFF. Leipzig, Barth, 1905. Pp. viii + 269. Mk. 4.50.

Wissenschaftliche Beilage zum siebzehnten Jahresbericht (1904) der philosophischen Gesellschaft an der Universität zu Wien. Papers by E. MÜLLER, S. EXNER, R. GOLDSCHEID, R. EISLER. Leipzig, Barth, 1904. Pp. 79. Mk. 2.

Cranio-muscular Origins of Brain and Mind. P. H. ERBÉS. Chicago, Promethean Publ. Co., 1904. Pp. 240.

NOTES AND NEWS.

Dr. I. Woodbridge Riley, Ph.D. (Yale), author of *The Founders of Mormonism*, has been appointed to one of the new Johnston Research Scholarships in the Johns Hopkins University. The two other scholarships on the same foundation were taken by candidates in Chemistry and Physiology. Dr. Riley will devote himself to the preparation of a work on 'The History of Reflective Thought in America.'

At the recent Centennial celebration of the College of South Carolina the honorary degree of LL.D. was conferred upon Professor Lefevre, of Tulane University, and Professor Baldwin, of Johns Hopkins.

The gift of $50,000 by Edward D. Adams, in memory of his son, Ernest K. Adams, to Columbia University for the foundation of a psychical research fellowship was announced at the meeting of the university trustees.